

6824 DIC (MIS)/M. 1092.

28 Mar 45.

Detailed Interrogation Report

IF FOLDER
116

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NOTES ON SPECIAL SIGNAL EQUIPMENT

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INTELLIGENCE
BRANCH

I. SOURCE

Name : STOEBE, Gerhard
Rank : Obergefreiter
Unit : 1 Co 509 Army Sigs Regt
Captured : 2 Mar 45 at GREVENBROICH
Interrogated : 6824 DIC (MIS), 20 Mar 45.

II. PREAMBLE

PW is a 32 year old electrical engineer from BERLIN. He deserted in civilian clothing and surrendered to the ALLIES in order to be of assistance with his technical information. He talks intelligently and is extremely co-operative.

Reliability: B-2

NOTE: See also Report 6824 DIC (MIS)/M. 1089 containing information by the same source.

III. SPECIAL SIGNAL EQUIPMENT

A. Listening System (LAUSCHANLAGE)

As far as PW knows, various GESTAPO and high Nazi Officials have had concealed microphones and dictaphone recorders installed in their private apartments which enabled them to record conversations by their guests and preserve such statements for future use or for blackmailing purposes. In conjunction with this set-up a stool pigeon is usually used who having been thoroughly briefed provokes certain people to express their political viewpoints.

PW also heard that the GESTAPO has special raiding parties whose job is to raid, during the night, the homes of political suspects and install concealed microphones. The raids are conducted in such fashion, that the inhabitants of the houses are not aware of the fact that their homes have been entered. The wires of the microphones are led to an adjoining building where the recording apparatus has been set up. Thus all conversations are recorded, sometimes for weeks, without arousing suspicion. After it is found, that there is no need for further recordings, the house is again raided by these specialists who remove the installations. Usually an arrest follows.

During the Spring of 40, PW was called upon to install concealed microphones for listening purposes in the private villa of SA OBERGRUPPENFUEHRER JAGOW (Res Add: AM HIRSCHSPRUNG/DAHLEM/BERLIN).

The microphones were not sensitive enough to permit complete concealment. It was not possible to place the microphones against a wall or in a specially drilled hole without permitting the diaphragm to protrude towards the selected objectives. It was necessary, therefore, to conceal the microphones in such places where they could not be located by the naked eye because of the surroundings. Highly decorated picture frames, heavy curtains, wood carvings over fire places etc. had to be used since it was easy to conceal the microphones amongst the various decorative wood carvings. In wood work, a hole was drilled approx 25 mm

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sealed in the floor cracks, and then lead to the wall where they were concealed either under the wall paper or behind the base board.

The following installations were made by PW:

1. Microphones

PW installed so called KNOPFMIKROPHONE (of the crystal type) weighing approx 100 grams, approx 25 mm in diameter and 15 mm high. The microphones were in aluminum housings covered with ABDECKRINGE (a metal ring-like cover which is screwed on to the microphone housing). Under this cover was a very fine metal mesh protecting the aluminum foil microphone membrane. The back of the microphone had two M2 (2 mm) size screws, one in the center of the microphone, the other on the edge of the microphone perimeter to which the wires were attached. The center screw was in a bakelite housing.

2. Wires

Each microphone had two copper wires 0.5 mm in diameter which were isolated with a thin coating of white lacquer covered with a silk envelope.

3. Hookup (See diagram on APPENDIX "A")

The microphones were paired and hooked up in parallel. The pairs could be operated independently of each other. Two leads were lead into the microphone amplifier from where two leads led to the dictaphone recorder and two leads to the 3-Stage Amplifier from where the reception was further amplified and projected through a loudspeaker. The microphone was connected directly to the microphone amplifier by means of a shielded or screened single pair cable and internally to the volume control of the microphone amplifier (resistance - 1 meg ohm). According to PW the maximum distance from microphone to microphone amplifier is 50 meters.

4. The Microphone Amplifier

The microphone amplifier is a two valve amplifier, using two directly heated triodes. It is battery driven and its output is matched to the input of the recording amplifier (Impedance - 10,000 Ohms). It has a gain of 3 to 3.5 NEPERS (1 decibel - 1.151 Decinepers) which is sufficient to amplify the original signal as received by the microphone, to headphone strength (presumably in the region of 1 volt).

5. The Recording Amplifier

The recording amplifier consists of a three stage amplifier operating from a 220 volt AC source. Tube data, as given by PW is as follows:

<u>Type of Tube</u>	<u>Function</u>	<u>Anode Current</u>
A.C.2	1st Stage Amplifier(Triode)	2.3 milliamps
A.C.2	2nd Stage Amplifier(Triode)	2.3 milliamps
A.L.4	Output(Power	32-45 millia

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PW does not know power output of amplifier, but the output impedance is 7,000 Ohms.

6. The Dictaphone Recorder

a) Housing

The Dictaphone Recorder was housed in a plywood box enclosed in a steel frame. The cover sealed the box pneumatically. Two plug openings on the side of the housing permitted the entry of the microphone wires into the set.

7. Operation of the Dictaphone Recorder

See APPENDIX "B"

To operate the Dictaphone Recorder the following procedure had to be employed:

a) The recording band consisting of a cellophane or celluloid tape sprayed with very fine powdered iron, is placed on roller A. The band is sufficiently long to record a conversation of 30 minutes duration.

b) The recording band is then lead between fixed, highly polished, iron knobs into the magnet box, where it is placed between magnets 1 and 2. It is then lead out of the magnet box between fixed, highly polished, iron knobs to roller B to which it is affixed.

c) The button marked EIN (on) is then pressed in.

d) A 30 seconds waiting period is necessary to light the VERSTÄRKER LÄMPE (Amplifier Lamp) completely, thus indicating to the operator that the microphones are in operation.

e) After tuning the set and when the conversation comes through clearly, he presses the button marked AUFN (AUFNAHME - recording) along with the button marked VORLAUFEN (Forward). This brings the set into full operation and the required conversation is recorded. Should the persons conversing move from one end of the room to another, the operator is able to distinguish their movements according to the sound coming through his loudspeaker. He then can switch over to another pair of microphones in the room until the conversation is heard clearly again. The switching of microphones does not effect reception. The dictaphone recorders are usually installed in pairs of twos. This is done in order to bridge the ruction caused by replacing a finished recording band. Consequently when the recording band on the operating machine reaches close to its end, the other dictaphone recorder is put into operation while the former is shut off and the recording band is exchanged. Thus recording can go on uninterrupted as long as the conversation lasts.

8. Play Back

After the whole conversation is recorded, the recording band is played back and the operator makes a written report of it. The following procedure is employed:

a) The roll containing the recorded material is placed on roller B. The band is then placed between the magnets and attached to roller A as indicated in para III-A-7-b.

b) The button marked EIN (On) is then pressed in and after the elapse of 30 seconds by which time the Amplifier Lamp is fully lit the set is ready for play back.

c) The button marked WIEDERGB (WIEDERGABE - Play back) along with the button marked RUECKLAUFEN (Reverse) is pressed in and the set is in operation. The operator then is able to regulate the Play back of the set by the buttons marked SCHNELLAUF (Fast) or LANGSAMLAUF (Slow) depending on how fast he is able to write down the recording. Should he have misunderstood a word he can stop the set wherever he pleases by pressing the button marked STOP. The set will then play back the word on which he stopped the recording band over and over again. In order to put the set into motion again, he presses the button marked SCHNELLAUF or LANGSAMLAUF and the band moves forward again. Only Magnet No. 1 is used for recording and play back.

9. Demagnetization of Recording Band

Due to the fact that the recording band can be used indefinitely, the recordings of one conversation must be erased before the band can be employed again. For the demagnetization of the magnetic fields created by magnet No. 1 during the recording, magnet No. 2 is employed for the demagnetization process. Demagnetization of the recording band can be done either from roller A or from roller B. The set is switched on as described in para III-A-8-b, the button marked LOESCHEN (Demagnetize) is pressed in, along with the button marked VORLAUFEN (Forward) or RUECKLAUFEN (Reverse) as the case may be, and the recording band is permitted to pass along its entire length between the magnets No. 2. After this process, the recording band is completely cleared of magnetic fields and is ready to take up new recordings.

10. The Recording Band

According to FW the recording band, of cellophane or celluloid substance, covered with a microscopically thin iron powder of mat gray color, was 10 mm wide. It was manufactured by AEG (ALLGEMEINE ELEKTRIZITAETS GESELLSCHAFT) KABELWERK SCHOENEWEIDE, ABTEILUNG F.0 (FERNMELDEAPPARATE FABRIK OBERSPREE) in the ZLB 4 (ZENTRALLABORATORIUM 4 - Central Laboratory 4) in close liaison with the METALLURGISCHES LABORATORIUM (Metallurgic Laboratory) building at the address stated above.

It was first demonstrated in 41 along with the dictaphone recorder to representatives of the Radio Industry during an afternoon performance in the UFA PALAST AM ZOO Motion Picture Theatre. The ability of the recording band to record different sound effects (i.e. the concert

B. INVERTER GERAET (Telephone Conversation Scrambling Device)

1. History

The first time PW saw this set was in the beginning of 40 at the OKW DIENSTSTELLE ZOSSEN/BERLIN in the Telephone Building No. M5. Altogether four such sets were there in operation. PW believes that this set is in operation practically everywhere where General Officers occupy higher Hqs.

2. Purpose and Use

The INVERTER GERAET is used to scramble important telephone conversations in order to prevent anyone overhearing what is being said. Although it is possible to tap in on the telephone line, it is impossible to understand what is being said since only an INVERTER Set is able to unscramble the conversation and make the message understandable. Only high ranking officers are given the privilege of using the so called INVERTER Connection and only highly classified and important conversations can be forwarded in this fashion.

3. Security

A special security device is connected with the INVERTER GERAET to prevent the operators from listening in on the conversation. This set is connected to the operators switchboard and is called the "TICKERN". The moment that the operator depresses his listening in key on the switchboard, the TICKERN begins its operation, giving a loud tick-tack sound (approx one per second) to warn those, who are conversing, that some one is listening in on their conversation. PW does not know whether the same signal of warning is received should some one tap in on the line.

4. Characteristics of the Set

The set is housed in an iron-framed wooden box. It weighs 20 kgs (including batteries). PW believes that the set has 3 to 4 tubes which can be placed into their sockets from the outside, without having to open the box. He remembers that the tubes had eight contacts.

5. Operation

See APPENDIX "C" showing the front plate of the set.

Four plugs must be used to complete an INVERTER circuit. Two of the plugs are in the INVERTER sockets marked EING (EINGANG-In) and AUSG (AUSGANG-Out), one is connected to the telephone of the calling party and one is connected to the line of the party called. This procedure must be followed at both ends. When the call is completed, both parties must ring off. The operator, after observing that the signal flap on his switchboard has dropped, depresses the listening-in key of the switchboard bring into operation the "TICKERN" (Ticker) and inquires whether the call has been completed. If he hears no answer, he considers the call

In order to ensure clear reception, the operator tunes the set with the knob marked LAUT STAERKE (Tuning) on the INVERTER. He can thus control the strength of the transmission since it varies greatly depending on the distance to which the call has to be made.

It must be noted, however, that INVERTER calls are scheduled. It is not possible to transmit INVERTER calls every hour of the day since line carrier repeaters must be shut off during the process of transmission of INVERTER messages. This is done for the following reasons:

The set produces a carrier of very high amplitude with speech modulated on it, but at an extremely low modulation percentage. A factor is introduced which will produce a high noise to signal ratio, so that the audibility of the original speech is zero.

The INVERTER at the receiving station, eliminates the high amplitude carrier (presumably by a filtering process) and amplifies the original audio frequency component.

Consequently, the set was to be used only through unamplified lines. The modulation frequency of the set was higher than the optimal frequency of the German Telephone and Telegraph Company amplifiers.

6. Testing of the INVERTER

Before each operation, the set must be tested. It is important that the batteries within the set be sufficiently strong to power the INVERTER. The test is done by pressing the blue button (see APPENDIX "C") and watching the voltmeter indicator. It must play on the red field between 1.9 and 2.2 volts, and on the blue field between 80 and 120 volts. If it is below the numbers indicated above, the batteries must be exchanged.

C. GEHEIMSCHREIBER (Secret Teletypewriter)

PW has seen the GEHEIMSCHREIBER, but is not able to give a correct description of it. The sets he has seen were known by the name of LORENZ and SIEMENS G.

The first time PW saw the LORENZ GEHEIMSCHREIBER was in Oct 39 at the FUEHRER HAUPTQUARTIER (Code name ZEPPELIN) at ZOSSEN/BERLIN.

The second time PW saw the SIEMENS GEHEIMSCHREIBER was in 42 at OKW I in the Communications Section. The Communications Section was then in the BENDLER STRASSE 11 - 13 BERLIN.

The third time PW saw the LORENZ GEHEIMSCHREIBER was in Nov 43 at OKW III in the Communications Department. OKW III was then located at ZEHLENDORF/BERLIN.

According to PW, GEHEIMSCHREIBERS are used only by high GHQ. He believes that the sets are used only from Army Group commands and has heard of NO instances

D. ERIKA DETEKTOREMPFAENGER ("ERIKA" Detector Receiver)

See APPENDIX "D".

The ERIKA is a small pocket size crystal receiver. It is approx 2 inches square and approx 3/4 inches in height. At the present time it is being sold in large numbers all over Germany for 2,5 RM a piece. It can receive both the strong DEUTSCHLAND SENDER and the local city station where it is operated.

The crystal of the set comes in a separate part and can be attached to the receiver by the means of sockets with which the receiver is equipped. For details see APPENDIX "D".

E. HOCHFREQUENZ DRAHTFUNK

(NOTE: Information contained in this paragraph should be read in conjunction with Signals Questionnaire No. 3 GBI/OI-D/ 327.1; 6824 DIC (MIS) Reports No. M. 1050 and M. 1034.)

1. General Description

The HOCHFREQUENZ DRAHTFUNK System is widely used in GERMANY today. According to PW all cities which have a telephone exchange have DRAHTFUNK installations and can forward radio programs through the existing telephone network. Since 43 the REICHSPOST popularized this system, by issuing to its subscribers directives on how to make an improvised system and has also called upon the telephone subscribers to become regular subscribers of the DRAHTFUNK Systems. Those subscribers who became registered DRAHTFUNK subscribers received all the assistance necessary from the REICHSPOST free of charge. In order to bring about better reception the REICHSPOST has supplied free of charge to all subscribers special DRAHTFUNK condensators of 0.022 microfarads. The condensator was to be attached to the telephone cable. For details of primitive, improvised DRAHTFUNK installations see report 6824 DIC (MIS)/M. 1050. PW confirmed the existing information. The general information in report GBI/OI-D/327.1 was also confirmed by PW.

2. The "WEICHE" (Switch Box)

In Jun 44, subscribers to the DRAHTFUNK Systems received a switch box which was installed free of charge by the REICHSPOST in their apartments. The purpose of this switch box was to eliminate all the wires which were necessary in previous installations and make the system as compact as possible. It was also useful since one switch box was sufficient for one apartment house where four or five subscribers could use it simultaneously. For details see the sketch in APPENDIX "E".

ZJH (Ed. GAW)
For THOMAS C. VAN CLEVE, Lt-Col,
Commanding 6824 DIC (MIS).

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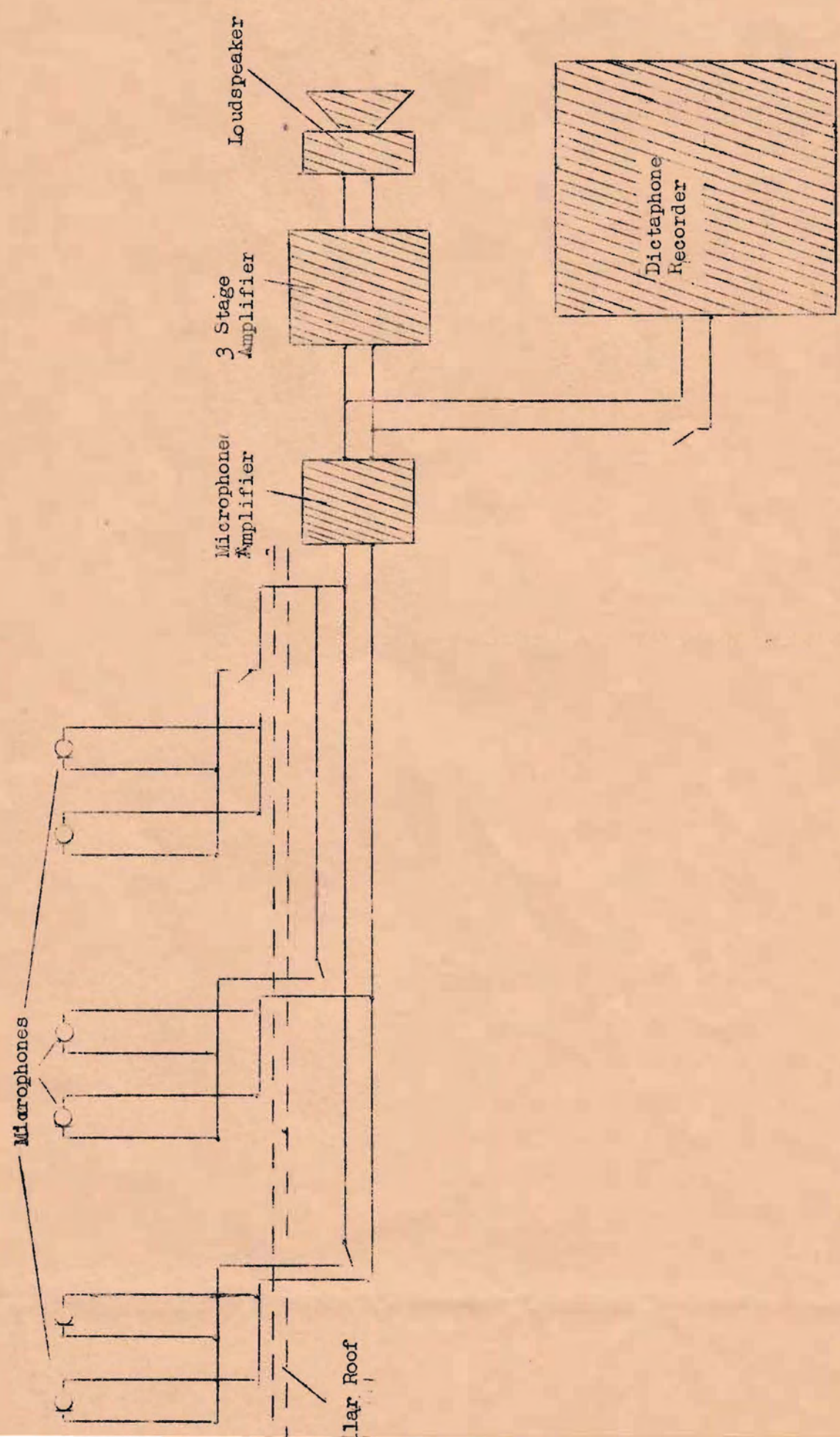
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D I S T R I B U T I O N

JICA, AFHQ.....4
 SHAEF.....8
 ETOUSA.....8
 6 Army Group.....6
 12 Army Group.....8
 21 Army Group.....1
 7 Army.....8
 MU 500.....2
 MI 14 (j).....3
 MI 193
 MIRS.....2
 G-2 (OI) AFHQ.....2
 1st French Army.....1
 CPM Washington.....2
 PW & X Det U.K.....1
 US Gp CC.....3
 Hq FID.....3
 O.S.S.....3
 PWD.....3
 T/L Div.....8
 Technical Reports Wash Sec...6
 File.....7

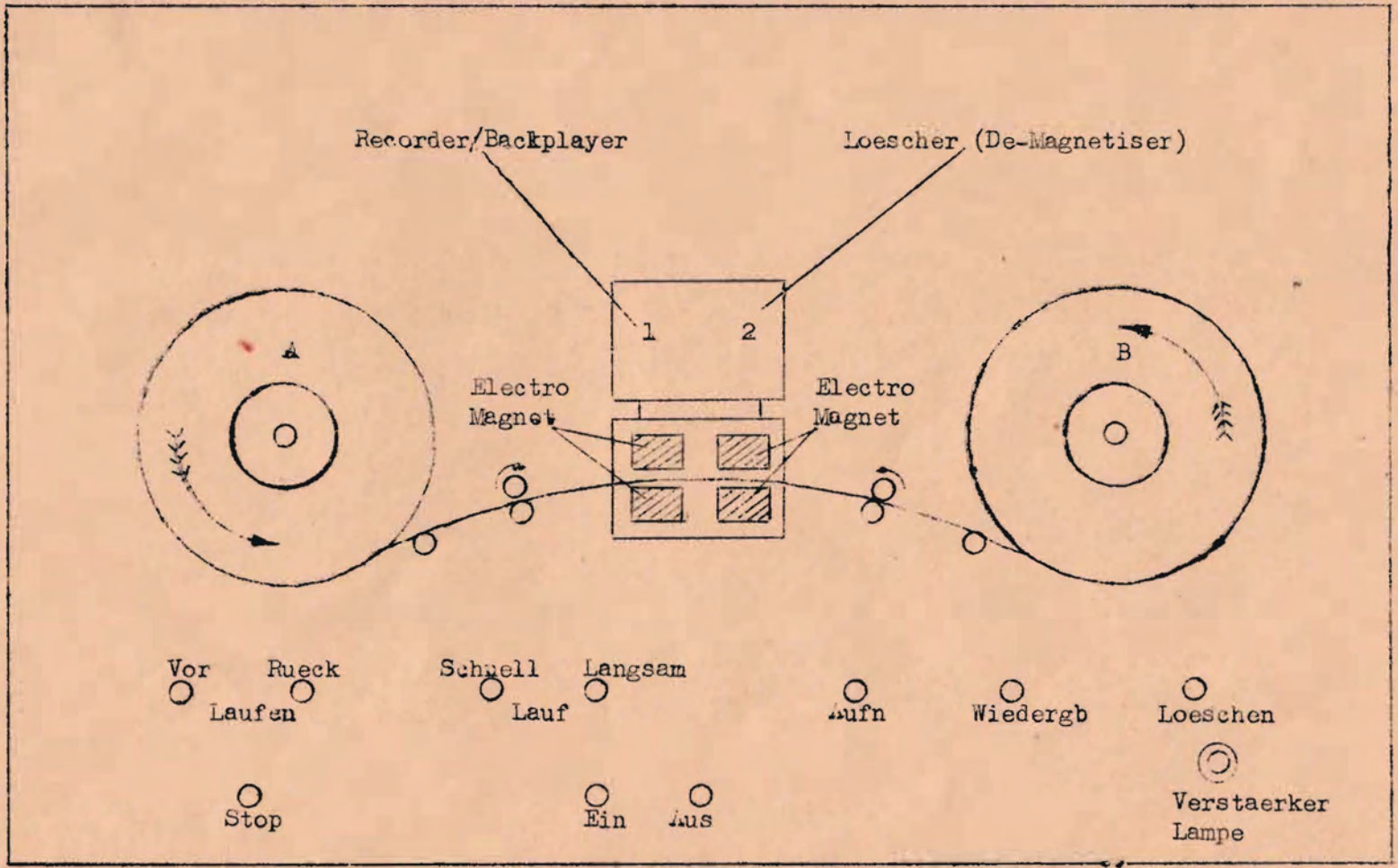
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(See para III-A-3 on page 3)



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DICTAPHONE RECORDER
(See para III-4-6, 7, and 8 on page 4 and 5)



SECRET

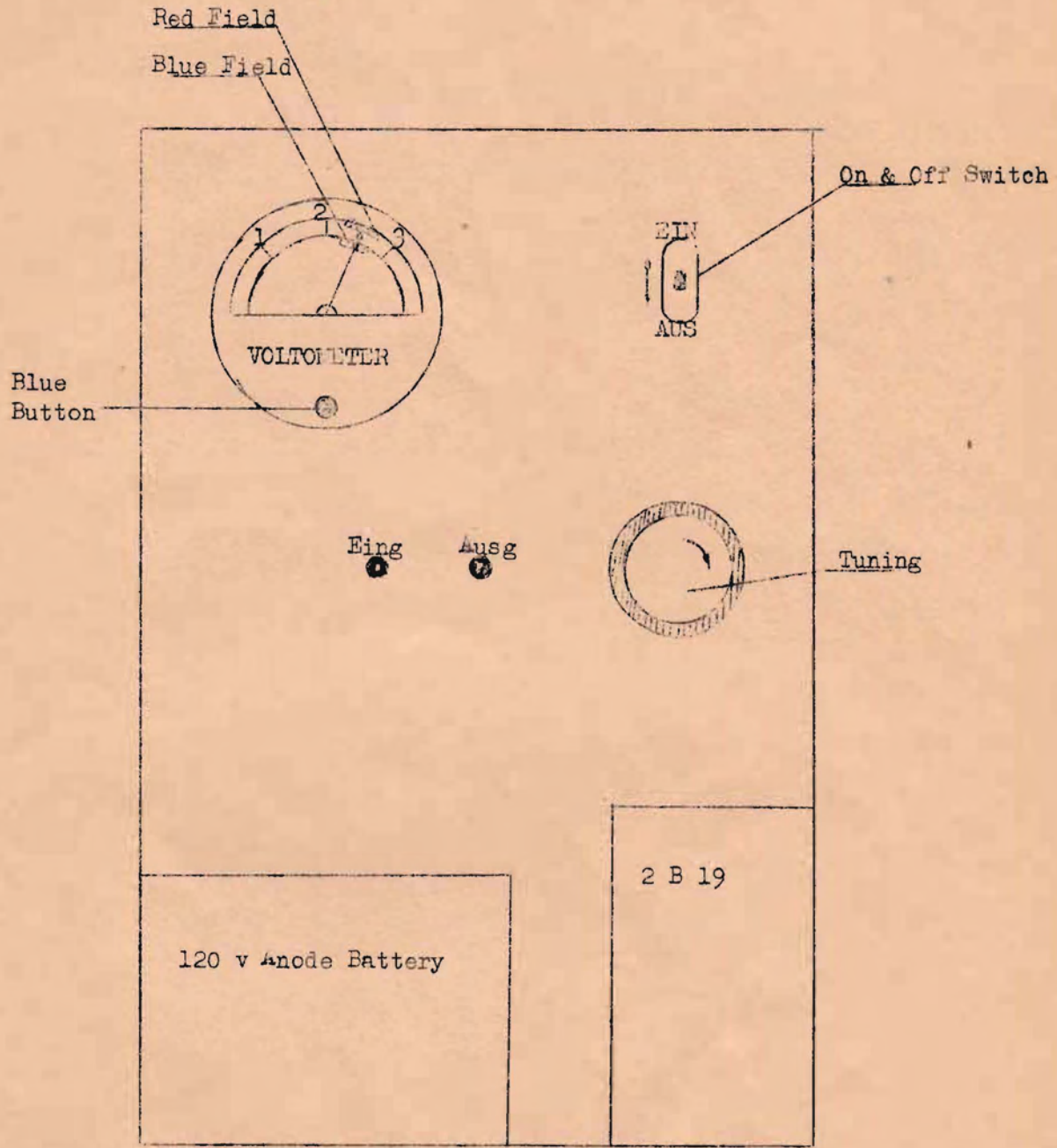
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Sketch No 1

Front Plate of Inverter Set

(See para ITI-B-5 on page 6)



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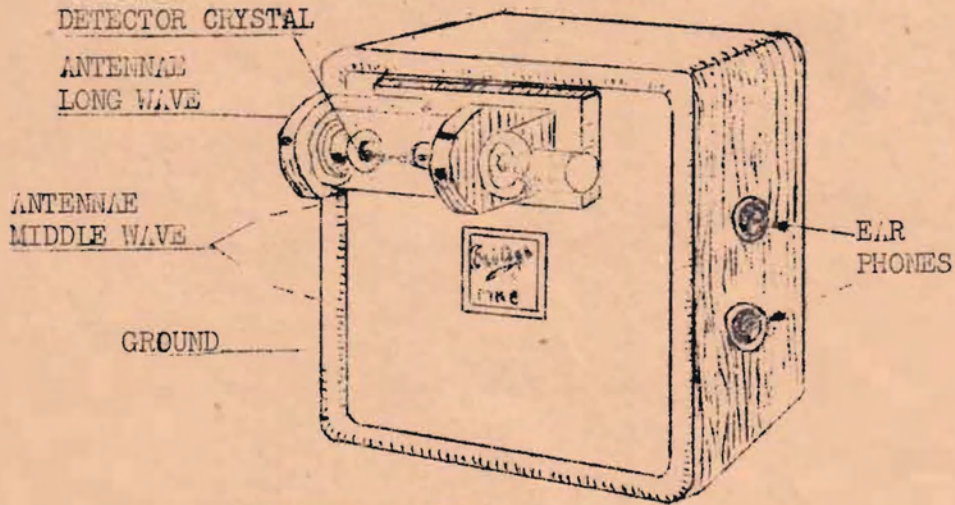
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ERIKA DETECTOR RECEIVER

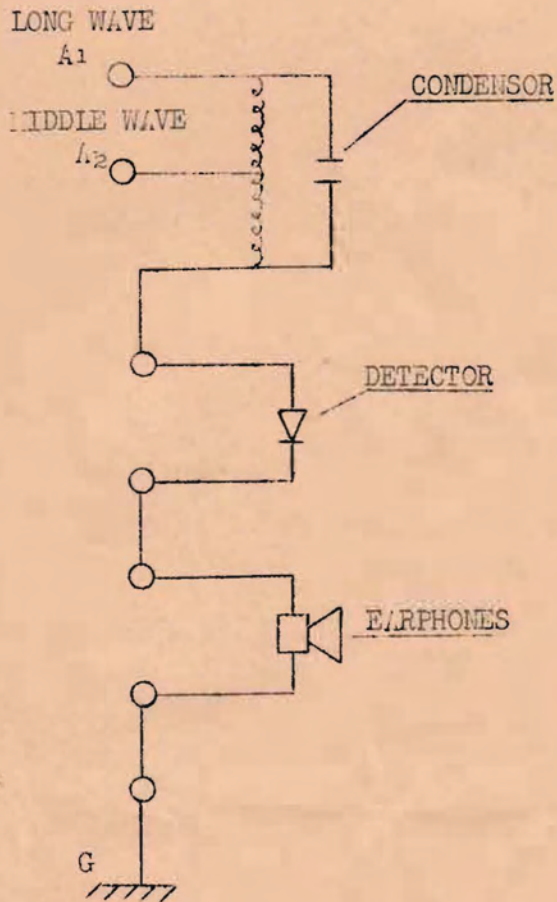
(SEE PARA D ON PAGE 8)

THREE QUARTER VIEW



(NATURAL SIZE)

CIRCUIT DIAGRAM

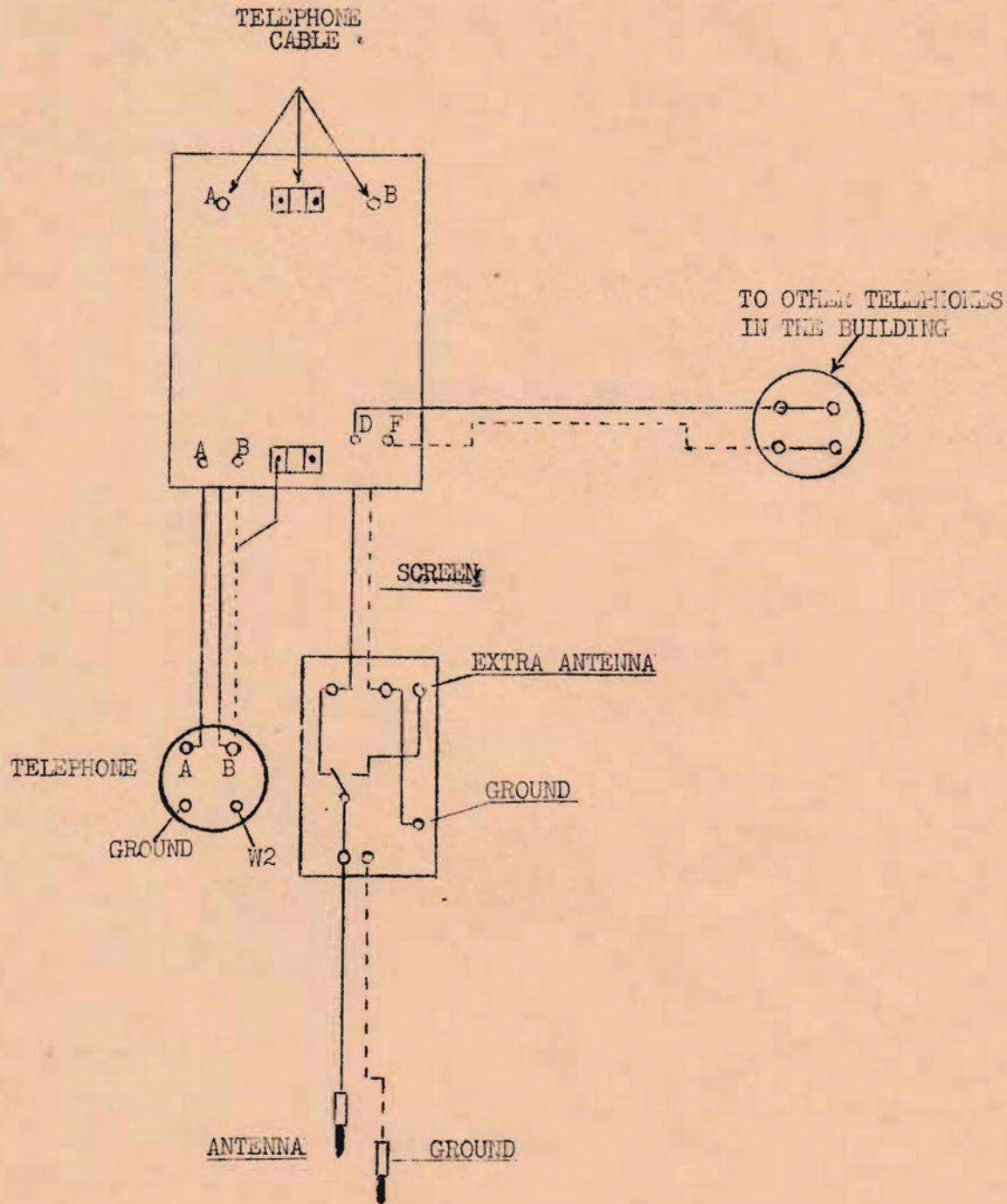


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SWITCH BOX (WEICHE) FOR HOCHFREQUENZ DRAHTFUNK

(See para III-E-2 on page 8)



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